



Public Services

Engineering
212 Operations Center Drive
Wilmington, NC 28412
910 341-7807
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wilmingtonnc.gov
Dial 711 TTY/Voice

July 9, 2018

Mr. Robert Waldon, Managing Member
SKF ILM, LLC
6310 Sea Mist Court
Wilmington, NC 28409

**Subject: Stormwater Management Permit No. 2017045R1
Shinnwood Cottages
Low Density Development with Curb Outlet Swales**

Dear Mr. Waldon:

The City of Wilmington Engineering Division has received a request for a revision to the Stormwater Management Permit for Shinnwood Cottages. Having reviewed the application and all supporting materials, the City of Wilmington has determined that the proposed revision meets the requirements of the City of Wilmington's Comprehensive Stormwater Ordinance.

The revisions include:

- Reallocation of on-site newly constructed impervious surface area with total on-site impervious surface area remaining unchanged.
- See approved plans dated June 28, 2018.

Please be aware all terms and conditions of the permit Issued on October 12, 2017 remain in full force and effect. Any additional changes to the approved plans must be approved by this office prior to construction. The issuance of the plan revision does not preclude the permittee from complying with all other applicable statutes, rules, regulations or ordinances which may have jurisdiction over the proposed activity, and obtaining a permit or approval prior to construction.

The revised stamped, approved stormwater management drawings will be released for construction by the Wilmington Planning Division under separate cover. Please replace any old plan sheets from the approved set with the new, revised sheet. An electronic copy of the approved drawing set, permit, application and supplementary documents will be maintained by the Wilmington Engineering Division. If you have any questions, or need additional information, please contact Richard Christensen at (910) 341-7813 or richard.christensen@wilmingtonnc.gov

Sincerely,

for Sterling Cheatham, City Manager
City of Wilmington

cc: Charles D. Cazier, PE, Intracoastal Engineering, PLLC
Brian Chambers, Senior Planner, City of Wilmington



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STORMWATER MANAGEMENT PERMIT APPLICATION FORM
(Form SWP 2.2)

I. GENERAL INFORMATION

1. Project Name (subdivision, facility, or establishment name - should be consistent with project name on plans, specifications, letters, operation and maintenance agreements, etc.):

Shinnwood Cottages

2. Location of Project (street address):

6415 Greenville Loop Rd.

City: Wilmington County: New Hanover Zip: 28409

3. Directions to project (from nearest major intersection):

Travel 0.8 miles South on Greenville Loop Rd. from Oleander Dr. and the project site is located on the right side of the road.

II. PERMIT INFORMATION

1. Specify the type of project (check one): ☒ Low Density ☐ High Density
☐ Drains to an Offsite Stormwater System ☐ Drainage Plan ☐ Other
If the project drains to an Offsite System, list the Stormwater Permit Number(s):

City of Wilmington: _____ State – NCDENR/DWQ: _____

2. Is the project currently covered (whole or in part) by an existing City or State (NCDENR/DWQ) Stormwater Permit? ☐ Yes ☒ No

If yes, list all applicable Stormwater Permit Numbers:

City of Wilmington: _____ State – NCDENR/DWQ: _____

3. Additional Project Permit Requirements (check all applicable):

☐ CAMA Major ☒ Sedimentation/Erosion Control

☐ NPDES Industrial Stormwater ☐ 404/401 Permit: Proposed Impacts: _____

If any of these permits have already been acquired please provide the Project Name, Project/Permit Number, issue date and the type of each permit:

III. CONTACT INFORMATION

1. Print Applicant / Signing Official's name and title (specifically the developer, property owner, lessee, designated government official, individual, etc. who owns the project):

Applicant / Organization: SKF ILM, LLC

Signing Official & Title: Robert Waldon, Managing Member

- a. Contact information for Applicant / Signing Official:

Street Address: 6310 Sea Mist Ct.

City: Wilmington State: NC Zip: 28409

Phone: 910 496 8898 Fax: _____ Email: DT100@skf.ilm.com

Mailing Address (if different than physical address): _____

City: _____ State: _____ Zip: _____

- b. Please check the appropriate box. The applicant listed above is:

- ☒ The property owner (Skip to item 3)
☐ Lessee* (Attach a copy of the lease agreement and complete items 2 and 2a below)
☐ Purchaser* (Attach a copy of the pending sales agreement and complete items 2 and 2a below)
☐ Developer* (Complete items 2 and 2a below.)

2. Print Property Owner's name and title below, if you are the lessee, purchaser, or developer. (This is the person who owns the property that the project is on.)

Property Owner / Organization: _____

Signing Official & Title: _____

- a. Contact information for Property Owner:

Street Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____ Email: _____

Mailing Address (if different than physical address): _____

City: _____ State: _____ Zip: _____

3. (Optional) Print the name and title of another contact such as the project's construction supervisor or another person who can answer questions about the project:

Other Contact Person / Organization: N/A

Signing Official & Title: _____



a. Contact information for person listed in item 3 above:

Street Address: _____

City: _____ State: _____ Zip: _____

Phone: _____ Fax: _____ Email: _____

Mailing Address (if different than physical address): _____

City: _____ State: _____ Zip: _____

IV. PROJECT INFORMATION

1. In the space provided below, briefly summarize how the stormwater runoff will be treated.

Runoff will be treated via vegetated swales that will convey water to existing on-site wetlands.The existing wetlands will provide peak runoff attenuation as required for the 2, 10, and 25-yr storms.

2. Total Property Area: 307,334 square feet
3. Total Coastal Wetlands Area: 0 square feet
4. Total Surface Water Area: 0 square feet
5. Total Property Area (2) – Total Coastal Wetlands Area (3) – Total Surface Water Area (4) = Total Project Area: 307,334 square feet.
6. Existing Impervious Surface within Property Area: 0 square feet
7. Existing Impervious Surface to be Removed/Demolished: 0 square feet
8. Existing Impervious Surface to Remain: 0 square feet
9. Total Onsite (within property boundary) Newly Constructed Impervious Surface (*in square feet*):

Buildings/Lots	36,750
Impervious Pavement	23,586
Pervious Pavement (adj. total, with 75 % credit applied)	0
Impervious Sidewalks	7,033
Pervious Sidewalks (adj. total, with % credit applied)	0
Other (describe)	0
Future Development	6,391
Total Onsite Newly Constructed Impervious Surface	73,760

10. Total Onsite Impervious Surface

(Existing Impervious Surface to remain + Onsite Newly Constructed Impervious Surface) = 73,760 square feet

11. Project percent of impervious area: (Total Onsite Impervious Surface / Total Project Area) x100 =
- 24
- %

ENGINEERING

12. **Total Offsite Newly Constructed Impervious Area** (improvements made outside of property boundary, in square feet):

Impervious Pavement	351
Pervious Pavement (adj. total, with % credit applied)	0
Impervious Sidewalks	0
Pervious Sidewalks (adj. total, with % credit applied)	0
Other (describe)	0
Total Offsite Newly Constructed Impervious Surface	351

13. **Total Newly Constructed Impervious Surface**

(Total Onsite + Offsite Newly Constructed Impervious Surface) = 74111 square feet

14. Complete the following information for each Stormwater BMP drainage area. If there are more than three drainage areas in the project, attach an additional sheet with the information for each area provided in the same format as below. Low Density projects may omit this section and skip to Section V.

Basin Information	BMP # 1	BMP #	BMP #
Receiving Stream Name	Hewletts Creek		
Receiving Stream Index Number	18-87-26		
Stream Classification	SA; HQW		
Total Drainage Area (sf)	103334	0	0
On-Site Drainage Area (sf)	103334	0	
Off-Site Drainage Area (sf)	0	0	0
Total Impervious Area (sf)	73760	0	0
Buildings/Lots (sf)	36750	0	
Impervious Pavement (sf)	23586	0	0
Pervious Pavement, % credit (sf)	0	0	
Impervious Sidewalks (sf)	7033	0	
Pervious Sidewalks, % credit (sf)	0	0	0
Other (sf)	0	0	
Future Development (sf)	6391	0	0
Existing Impervious to remain (sf)	0	0	0
Offsite (sf)	0	0	0
Percent Impervious Area (%)	71.4		

15. How was the off-site impervious area listed above determined? Provide documentation:

V. SUBMITTAL REQUIREMENTS

1. Supplemental and Operation & Maintenance Forms - One applicable City of Wilmington Stormwater BMP supplement form and checklist must be submitted for **each** BMP specified for this project. One applicable proposed operation and maintenance (O&M) form must be submitted for **each type** of stormwater BMP. Once approved, the operation and maintenance forms must be referenced on the final plat and recorded with the register of deeds office.
2. Deed Restrictions and Restrictive Covenants - For all subdivisions, outparcels, and future development, the appropriate property restrictions and protective covenants are required to be recorded prior to the sale of any lot. Due to variability in lot sizes or the proposed BUA allocations, a table listing each lot number, lot size, and the allowable built-upon area must be provided as an attachment to the completed and notarized deed restriction form. The appropriate deed restrictions and protective covenants forms can be downloaded at the link listed in section V (3). Download the latest versions for each submittal.

In instances where the applicant is different than the property owner, it is the responsibility of the property owner to sign the deed restrictions and protective covenants form while the applicant is responsible for ensuring that the deed restrictions are recorded.

By the notarized signature(s) below, the permit holder(s) certify that the recorded property restrictions and protective covenants for this project, if required, shall include all the items required in the permit and listed on the forms available on the website, that the covenants will be binding on all parties and persons claiming under them, that they will run with the land, that the required covenants cannot be changed or deleted without concurrence from the City of Wilmington, and that they will be recorded prior to the sale of any lot.

3. Only complete application packages will be accepted and reviewed by the City. A complete package includes all of the items listed on the City Engineering Plan Review Checklist, including the fee. Copies of the Engineering Plan Review Checklist, all Forms, Deed Restrictions as well as detailed instructions on how to complete this application form may be downloaded from:

<http://www.wilmingtonnc.gov/PublicServices/Engineering/PlanReview/StormwaterPermits.aspx>

The complete application package should be submitted to the following address:

City of Wilmington – Engineering
Plan Review Section
414 Chestnut Street, Suite 200
Wilmington, NC 28402

VI. CONSULTANT INFORMATION AND AUTHORIZATION

1. Applicant: Complete this section if you wish to designate authority to another individual and/or firm (such as a consulting engineer and /or firm) so that they may provide information on your behalf for this project (such as addressing requests for additional information).

Consulting Engineer: Charles D. Cazier, P.E.

Consulting Firm: Intracoastal Engineering, PLLC

a. Contact information for consultant listed above:

Mailing Address: 5725 Oleander Dr. Unit E-7

City: Wilmington

State: NC

Zip: 28403

Phone: 910.859.8983

Fax: _____

Email: charlie@intracoastalengineering.com

VII. PROPERTY OWNER AUTHORIZATION (If Section III(2) has been filled out, complete this section)

I, (print or type name of person listed in Contact Information, item 2) _____, certify that I own the property identified in this permit application, and thus give permission to (print or type name of person listed in Contact Information, item 1) _____ with (print or type name of organization listed in Contact Information, item 1) _____ to develop the project as currently proposed. A copy of the lease agreement or pending property sales contract has been provided with the submittal, which indicates the party responsible for the operation and maintenance of the stormwater system.

As the legal property owner I acknowledge, understand, and agree by my signature below, that if my designated agent (entity listed in Contact Information, item 1) dissolves their company and/or cancels or defaults on their lease agreement, or pending sale, responsibility for compliance with the City of Wilmington Stormwater Permit reverts back to me, the property owner. As the property owner, it is my responsibility to notify the City of Wilmington immediately and submit a completed Name/Ownership Change Form within 30 days; otherwise I will be operating a stormwater treatment facility without a valid permit. I understand that the operation of a stormwater treatment facility without a valid permit is a violation of the City of Wilmington Municipal Code of Ordinances and may result in appropriate enforcement including the assessment of civil penalties.

Signature: _____

Date: 5/5/17

SEAL

LISA BACKLEY
NOTARY PUBLIC
NEW HANOVER COUNTY, NC
MY COMMISSION EXPIRES OCTOBER 24, 2017

I, Lisa Backley, a Notary Public for the State of North Carolina, County of New Hanover, do hereby certify that Robert Waldon personally appeared before me this day of May 5, 2017, and acknowledge the due execution of the application for a stormwater permit. Witness my hand and official seal,
Lisa Backley
My commission expires: 10/24/17

VIII. APPLICANT'S CERTIFICATION

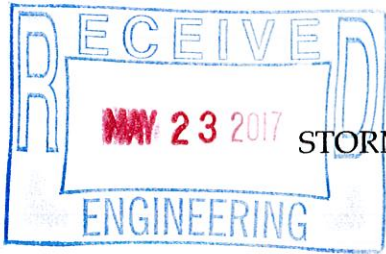
I, (print or type name of person listed in Contact Information, item 1) Robert Waldon certify that the information included on this permit application form is, to the best of my knowledge, correct and that the project will be constructed in conformance with the approved plans, that the required deed restrictions and protective covenants will be recorded, and that the proposed project complies with the requirements of the applicable stormwater rules under.

Signature:  Date: 5/5/17

SEAL

LISA RACKLEY
NOTARY PUBLIC
NEW HANOVER COUNTY, NC
MY COMMISSION EXPIRES OCTOBER 24, 2017

I, Lisa Rackley, a Notary Public for the State of North Carolina, County of New Hanover, do hereby certify that Robert Waldon personally appeared before me this day of May 5, 2017, and acknowledge the due execution of the application for a stormwater permit. Witness my hand and official seal,
Lisa Rackley
My commission expires: 10/24/17



Permit No. _____
(to be provided by City of Wilmington)

STORMWATER MANAGEMENT PERMIT APPLICATION FORM

LOW DENSITY SUPPLEMENT

This form may be photocopied for use as an original

A low density project is one that meets the appropriate criteria for built upon area and transports stormwater runoff primarily through vegetated conveyances. Low density projects should not have a discrete stormwater collection system as defined by 15A NCAC 2H .1002(18). Low density requirements and density factors can be found in the City of Wilmington Land Development Code (LDC) Section 18-760 through 18-762, and the DWQ BMP Manual. Curb and gutter systems are allowed provided they meet the requirements in 15A NCAC 2H .1008(g).

I. PROJECT INFORMATION

Project Name : Shinnwood Cottages

Contact Person: Charles Cazier, P.E. - Intracoastal Engineering Phone Number: (910)859-8983

Number of Lots:21

Allowable Built Upon Area (BUA) Per Lot*:1750

Number of Dwelling Units Per Acre**: _____

Low Density Development (check one): ☐ without curb & gutter ☒ with curb & gutter, outlets to (check one):
☒ Swales ☐ Vegetated Area

*If lot sizes are not uniform, attach a table indicating the number of lots, lot sizes and allowable built upon area for each lot. The attachment must include the project name, phase, page numbers and provide area subtotals and totals. BUA shall be shown in units of square feet.

** (Phase II Post-Construction (non-SA) only)

II. BUILT UPON AREA

Refer to City of Wilmington's forms and applications website for specific language that must be recorded in the deed restrictions for all subdivided projects.

(<http://www.wilmingtonnc.gov/PublicServices/Engineering/PlanReview/StormwaterPermits.aspx>)

Complete the following calculation in the space provided below where:

- SA Site Area - the total project area above Mean High Water.
- DF Density Factor - the appropriate percent built upon area divided by 100.
- RA Road Area - the total impervious surface occupied by roadways.
- OA Other Area - the total area of impervious surfaces such as clubhouses, tennis courts, sidewalks, etc.
- No. of Lots - the total number of lots in the subdivision.
- BUA per Lot - the computed allowable built upon area for each lot including driveways and impervious surfaces located between the front lot line and the edge of pavement.
- Total allowable lot BUA - the computed allowable built upon area for all lots combined.
- Total BUA from lot listing - the sum of built upon area allocated for each lot on the list of non-uniform lots.

Calculation:

For uniform lot sizes:

$$(SA: 307,334 \text{ ft}^2 \times DF: 0.24) - (RA: 23,586 \text{ ft}^2) - (OA: 13,424 \text{ ft}^2) = \text{BUA per Lot} = 1,750 \text{ ft}^2$$

(No of Lots: 21)

For non-uniform lot sizes:

a. $(SA: \text{_____ ft}^2 \times DF: \text{_____}) - (RA: \text{_____ ft}^2) - (OA: \text{_____ ft}^2) = \text{Total allowable lot BUA} = \text{_____ ft}^2$

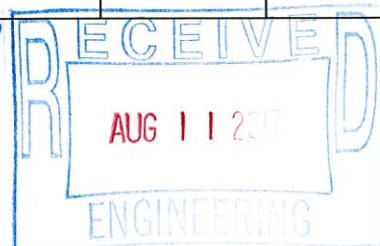
b. Total BUA from lot listing: _____sf. **b must be \leq a**

III. DESIGN INFORMATION

Complete the following table. If additional space is needed the information should be provided in the same format as Table 1 and attached to this form. Rainfall intensity data can be found in City of Wilmington's Technical Standards Manual.

Table 1. Swale design information based on the **10-year storm**.

Swale No.	Drainage Area (ac)	Impervious Area (ac)	Grassed Area (ac)	C	Q (cfs)	Slope (%)	V _{allow} (fps)	V _{actual} (fps)	Flow Depth (ft)
1	1.11	0.70	0.41	0.67	5.38	0.48	4.0	1.74	0.54
2	0.74	0.63	0.29	0.84	4.49	0.50	4.0	1.68	0.49
3	0.52	0.20	0.14	0.49	1.84	0.64	4.0	1.43	0.29
4									
5									
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19									
20									



IV. REQUIRED ITEMS CHECKLIST

The following checklist outlines design requirements per the City of Wilmington LDC, and the NCDENR BMP Manual (2007).

Please indicate the page or plan sheet numbers where the supporting documentation can be found. **An incomplete submittal package will result in a request for additional information. This will delay final review and approval of the project.** Initial in the space provided to indicate that the following requirements have been met and supporting documentation is provided as necessary. If the applicant has designated an agent on the Stormwater Management Permit Application Form, the agent may initial below. **If any item is not met, then justification must be attached.** *Only complete items n through p for projects with curb outlets.*

- | Initials | Page/Plan Sheet No. | |
|------------|---------------------|---|
| _____ | <u>NA</u> | a. A 50 foot wide vegetative buffer is provided adjacent to surface waters. For Redevelopment projects, 30' wide vegetative buffer adjacent surface water is provided. |
| <u>BPD</u> | <u>C-2</u> | b. For Phase II Post-Construction projects: All built upon area is located at least 30 feet landward of all perennial and intermittent surface waters. |
| _____ | <u>NA</u> | d. Deed restriction language as required on form SWP 1.0 shall be recorded as a restrictive covenant. A copy of the recorded document shall be provided to the City of Wilmington within 30 days of platting and prior to the sale of any lots. |
| <u>BPD</u> | <u>CALCS</u> | e. Built upon area calculations are provided for the overall project and all lots. |
| <u>BPD</u> | <u>N/A</u> | f. Project conforms to low density requirements within the ORW AEC. (If applicable per the LDC) |
| <u>BPD</u> | <u>C-2</u> | g. Side slopes of swales are no steeper than 3:1; <i>or no steeper than 5:1 for curb outlet swales.</i> |
| <u>BPD</u> | <u>CALCS</u> | h. Longitudinal slope of swales is no greater than 5%; <i>for non-curb outlet projects</i> , calculations for shear stress and velocity are provided if slope is greater than 5%. |
| <u>BPD</u> | <u>CALCS</u> | i. At a minimum, swales are designed to carry the 10 year storm velocity at a non-erosive rate. |
| <u>BPD</u> | <u>CALCS</u> | j. Swales discharging to wetlands are designed to flow into and through the wetlands at a non-erosive velocity (for this flow requirement into wetlands, non-erosive is velocity ≤ 2 ft/s). |
| <u>BPD</u> | <u>C-3/C-5</u> | k. Swale detail and permanent vegetation is specified on the plans. |
| <u>BPD</u> | <u>C-5</u> | l. Swale detail provided on plans; includes grass type(s) for permanent vegetative cover. |
| <u>OC</u> | <u>C-2</u> | m. Swales are located in recorded drainage easements. |
| <u>BPD</u> | <u>CALCS</u> | n. ^{††} Length of swale or vegetated area is at least 100 feet for each curb outlet. |
| <u>BPD</u> | <u>DA MAP</u> | o. ^{††} The system takes into account the run-off at ultimate built-out potential from all surfaces draining to the system (delineate drainage area for each swale). |
| <u>BPD</u> | <u>C-2</u> | p. ^{††} Curb outlets direct flow to a swale or vegetated area. |

^{††} Only complete these items for projects with curb outlets.

V. SWALE SYSTEM MAINTENANCE REQUIREMENTS

1. Mowing will be accomplished as needed according to the season. Grass height will not exceed six inches at any time; and grass will not be mowed too close to the ground or "scalped".
2. Swales will be inspected monthly or after every runoff producing rainfall event for sediment build-up, erosion, and trash accumulation.
3. Accumulated sediment and trash will be removed as necessary. Swales will be reseeded or sodded following sediment removal.
4. Eroded areas of the swales will be repaired and reseeded. Swales will be revegetated as needed and in a timely manner based on the monthly inspections. Side slopes must be maintained at the permitted slope.
5. Catch basins, curb cuts, velocity reduction devices, and piping will be inspected monthly or after every significant runoff producing rainfall event. Trash and debris will be cleared away from grates, curb cuts, velocity reduction devices and piping.
6. Swales will not be altered, piped, or filled in without approval from the City of Wilmington Engineering Division.

I acknowledge and agree by my signature below that I am responsible for the performance of the six maintenance procedures listed above. I agree to notify the City of Wilmington of any problems with the system or prior to any changes to the system or responsible party.

Print Name and Title: Robert Waldon, Managing Member

Address: 6310 Seamist Ct. Wilmington, NC 28409

Phone: [Signature]

Date: 5/5/17

Signature: 910-619-1058

Note: The legally responsible party should not be a homeowners association unless more than 50% of the lots have been sold and a resident of the subdivision has been named the president.

I, Lisa Backley, a Notary Public for the State of North Carolina County of New Hanover, do hereby certify that Robert Waldon personally appeared before me this day of May 5, 2017, and acknowledge the due execution of the forgoing swale maintenance requirements.

Witness my hand and official seal,

[Signature]
Notary signature



SEAL

My commission expires

10/24/17